PWC
DET.PHILA.
CODE 500

Standard Operating Procedure FOR High Voltage Electric

Electrical Manhole Entry

Prepared By :	Approved By :
	Code 500 3-18-99 Date

Code 500 SOP # 30

HVE # 1

Purpose:
Electrical Man Hole Entry

Potential Energy Source:
Primary and secondary electrical voltage-120 volts to 13,200 volts

Tools and PPE:
Gas free meter, manhole hook, rescue device, safety harness, pump to remove water from manhole, manhole guard, traffic cones, ph tester, hot stick, fiberglass ladder, blast blankets, hard hat, safety glasses, safety shoes, rubber boots, nomex coveralls, nomex hoods, insulating rubber gloves, insulating rubber sleeves, orange vest, work gloves, the class of rubber gloves and sleeves will depend on the exposure voltage as per the following: Class 0-up to 1,000 volts, Class 1 –up to 7500 volts, Class 2- up to 17000 volts.

References:
1. PWC Occupational Safety and Health Manuel PWCNORVAINST 5100.33E.
2. Occupational Safety and Health Standards for General Industry (29 CFR Part 1910): Subpart 1, Personnel Protective Equipment, Subpart R, Electrical power Generation / Transmission / Distribution, Subpart S, Electrical.
3. NFPA 70 E. approach distances to exposed energized, electrical conductors and circuit parts.
4. ANSI C2-1987 National Electrical Code.
5. Electrical Transmission and distributions Safety Manuel, P 1060
6. Code 500 SOP 16 Warning signs and barricades.

Procedures:
1. Install traffic control devices if manhole is in the street, highway, road, and sidewalk.
2. Wear necessary PPE.
3. Secure Work Vehicles.
4. Place emergency brake on and turn off engine.
5. Place wheel chocks, one on left rear and one on right front of work vehicle.
6. Prior to removing manhole cover test for any hazardous gases which may be in manhole.
    a. Sample the air, using a certified gas free technician, along the edge of manhole cover, if manhole has a hole in it push gas free samplers intake tube into the hole to sample air.
7. Remove manhole cover by using proper lifting device or manhole cover hook.
8. Place manhole guard with rescue device over opening.
9. Follow Code 900 Dewatering Instructions.
10. Follow PWC Gas Free Instructions prior to entering manhole.
11. Wear Nomex coveralls, required PPE and safety harness connected to the rescue device.
12. Place fiberglass ladder to enter manhole
13. Do not step on cables when entering manhole.

Electrical Work in Manhole

1. If all circuits in the manhole are de-energized and properly grounded, then the PPE will be as per the SOP/JSA covering the required work.
2. If personnel are entering the manhole to perform inspection or sketching work and this does not require touching or moving energized cables or de-energized cables not properly grounded, then the PPE will consist of Nomex coveralls, safety shoes, boots, work gloves and safety harness connected to manhole guard and rescue device.
3. For all other work in manhole with energized cables or de-energized cables not properly grounded:
   - **A.** Personnel will enter the manhole wearing Nomex coveralls, Nomex hood, insulating rubber gloves, insulating rubber sleeves, safety shoes, boots, hard hat with face shield, safety glasses and, a safety harness connected to rescue device.
   - **B.** All energized cables or de-energized cables not properly grounded will be covered with blast blankets.
   - **C.** After the blast blankets are placed, the PPE will consist of Nomex coveralls, Safety shoes, boots, work gloves, a safety harness connected to rescue device, and any other PPE required by the SOP/JSA covering the job.
   - **D.** If energized cables or de-energized cables not properly grounded are to be handled or blast blankets are not placed, then the PPE listed in 3.A will be required at all times.
   - **E.** After work is completed, put on step 3.A PPE to remove blast blankets prior to exiting the manhole.
4. Top watch is required at all times.